



This manual contains **IMPORTANT WARNINGS** and **INSTRUCTIONS**
READ AND RETAIN FOR REFERENCE

SILVER FOAM GUN

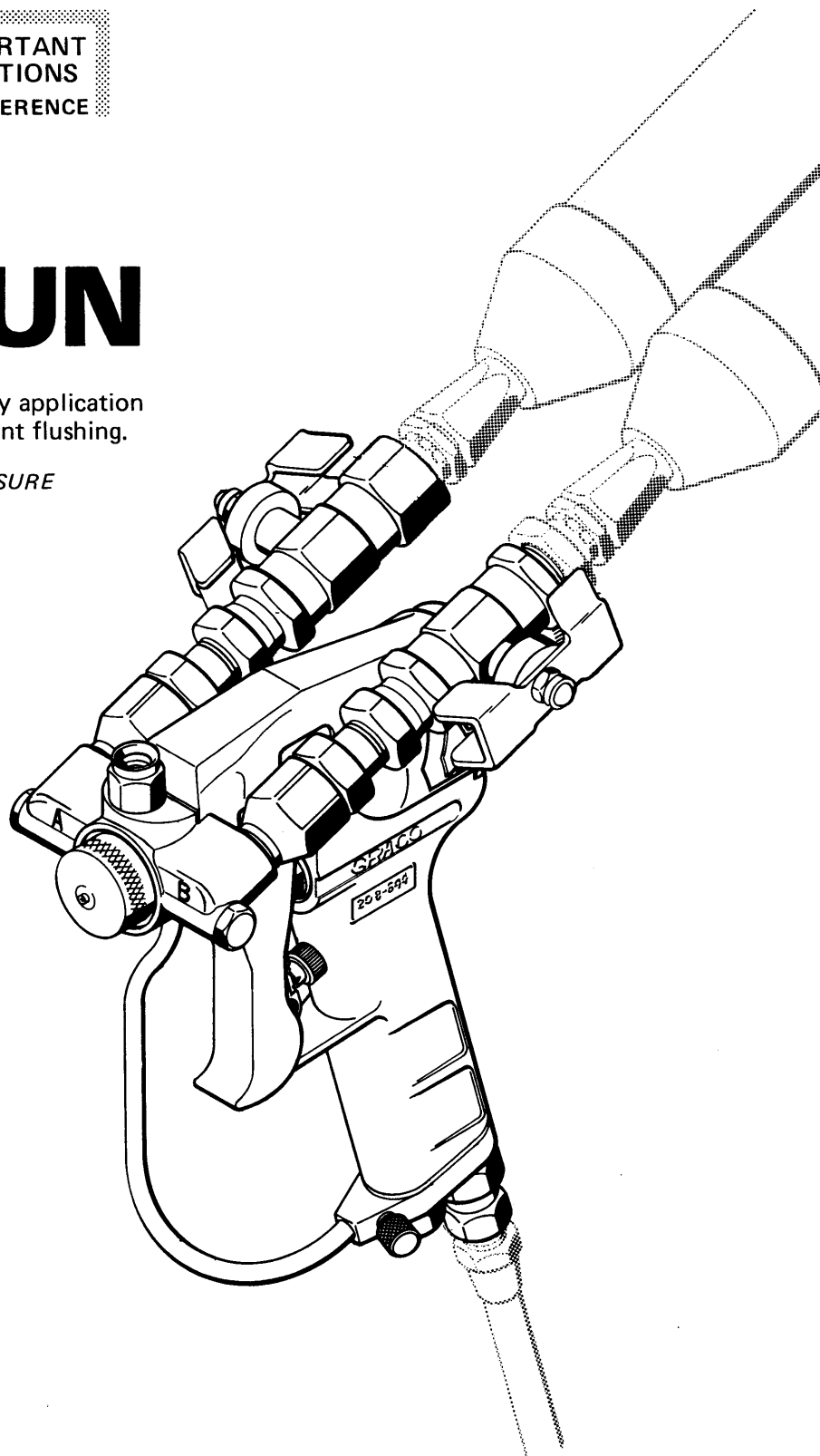
Hand held single trigger foam gun for spray application of polyurethane foams -- requires no solvent flushing.

1000 PSI (70 bar) MAXIMUM WORKING PRESSURE

Model 208-748 Series "B"
with 0.046" (1.17 mm) nozzle

Model 208-749 Series "B"
with 0.062" (1.57 mm) nozzle

Model 208-644 Series "B"
with 0.078" (1.98 mm) nozzle



IMPORTANT READ and UNDERSTAND

SAFETY PRECAUTIONS

High fluid pressure remains in the system until you relieve it by shutting off the air or hydraulic supply to pump and releasing the fluid pressure through the opened spray gun. If the fine high pressure stream of fluid released from spray gun comes in direct contact with the hand or any part of human body it can penetrate the skin and cause physical harm. The high velocity flow of material through the spray tip may develop static electricity. If static sparking occurs, fire or explosion could result. Because of these facts, anyone using this equipment must take the following precautions.

HANDLE THE FOAM GUN AS CAUTIOUSLY AS A LOADED FIREARM.

NEVER point gun at yourself or anyone else.

NEVER put the hand or fingers directly over the fluid tip. Wear protective leather gloves.

Whenever hand gun is left unattended, engage trigger safety to prevent accidental triggering.

DON'T exceed maximum recommended air or hydraulic input pressure to pump.

NEVER exceed 1000 psi (70 bar) working pressure in material lines.

ALWAYS shut off pump and relieve fluid pressure in system before removing the gun for service.

BE very careful when removing hose from gun. A plugged line contains fluid under high pressure. Loosen swivel couplings slightly and release pressures slowly before disconnecting hose completely.

PREVENT STATIC SPARKING

The high velocity flow of material through the spray tip may develop static electricity. Be sure your gun is grounded. Be sure your supply pump and the object you are spraying are grounded, if object can produce a static charge.

ALWAYS use the lowest pressure possible when flushing and hold gun firmly against metal waste container.

WARNING

Graco Inc. does not manufacture or supply any of the reactive chemical components that are used in this equipment and is not responsible for their effects. Because of the vast number of chemicals that could be used and their varying chemical reactions, the buyer and user of this equipment should determine all facts relating to the materials used, including any of the potential hazards involved. Particular inquiry and investigation should be made into potential dangers relating to toxic fumes, fires, explosions, reaction times, and exposure of human beings to the individual components or their resultant mixtures.

O-ring conversion kits for use with chlorinated and ketone solvents are available. See back page.

INSTALLATION

Connect the 2 inlet valves to your unit's material hoses.

NOTE: The inlet housing is provided with optional 1/4 npt inlets for vertical hook-up. If desired, remove pipe plugs from bottom inlets of housing, unscrew check valves, nipples and inlet valves from rear inlets and install in bottom inlets. Install pipe plugs in rear inlets. See Fig 1.

With valves open, prime the hoses, then close the valves and connect the swivel end of valves to the gun's check valves. Connect a 0.25" (6.4 mm) minimum ID grounded air hose to the 1/8 npsm air inlet.

Remove plugs from cleanout ports, and hold gun over two separate containers. Open the material inlet valves. Start the proportioning pump and let it run slowly until both materials flow smoothly without air spitting. Stop pump and shut off both A and B material inlet valves. Squirt Graco Throat Seal Lubricant (TSL) or cellosolve into cleanout ports and replace plugs.

NOTE: When talking about the materials, the base material, or resin, will be called part B, and the isocyanate will be called part A. Mark your hoses A and B, or with 2 colors of paint, so you won't get them mixed up. The gun's nozzle housing is marked A and B.

Turn on air supply to gun and set at 90 psi (6 bar). Turn on air to air cap by opening needle valve 1/4 turn. See Fig 1.

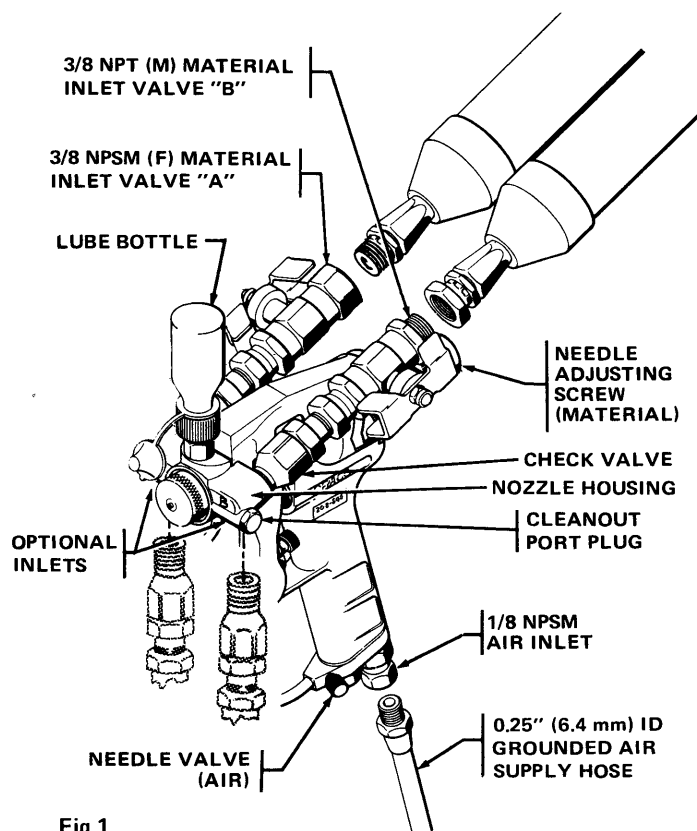


Fig 1

Fill the lube bottle with a suitable lubricant, i.e. TSL or Cellosolve, and snap bottle into place on gun. Squeeze lube bottle several times until lubricant comes out between needle and packing screw. See Fig 1.

Trigger gun several times to distribute lubricant evenly along needle and to see that gun operates freely. If not, disassemble and clean.

Check to see that needle projects 0.031" (0.79 mm) past tip.

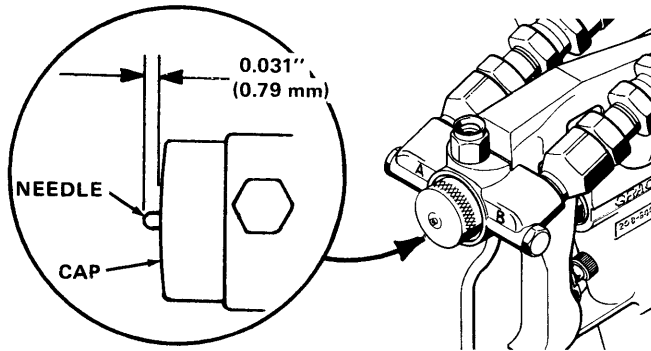


Fig 2

Momentarily open the B material inlet valve.

Open the A material inlet valve, then the B material valve.

OPERATION

SPRAY PATTERN ADJUSTMENT

When testing and adjusting the spray pattern, aim the gun at a test area such as a large piece of scrap cardboard. Pull trigger to spray, release to stop.

The temperature and pressure of the material, and the gun needle setting all affect the spray pattern. After some experimenting, you will soon get the feel of how to adjust the temperature, pressure and needle settings for the best spray pattern.

You should try to get a round spray pattern that is well atomized and hardens with a fairly smooth surface. See the chart for the proper size of pattern and spraying distance for the nozzle you are using.

If needle starts to stick or operate sluggishly, squeeze the lube bottle and trigger the gun several times to distribute lubricant on needle. The needle must be well lubricated for proper operation.

INITIAL SETTINGS

Most foam materials are designed for spraying from 100°-120° F (38°-49° C) at 500 to 600 psi (35-40 bar). We suggest starting at 500 psi (35 bar) material pressure, and at the material manufacturer's recommended temperature. If no temperature is specified, start at 100° F (38° C). Then adjust the gun needle as follows:

Turn adjusting screw all the way in and spray some short bursts, turning the adjusting screw out 1/4 turn per burst until the spray pattern opens up to the optimum size. The pattern will be narrow and coarse at first, then become wider and finer as you turn out the adjusting screw. Once you pass the optimum point, the pattern usually begins to split into 2 circles. Turn the adjusting screw 1/8 turn or less to make fine adjustments. Do not turn adjusting screw out beyond the point where the spray pattern begins to split. If needle is allowed to retract behind mixing chamber packing, lubrication channel may become plugged, requiring complete disassembly and clean out of gun.



NARROW, COARSE WIDER BEST SPLITTING

Fig 3

It will be helpful to observe effects of varying the fluid pressure and temperature. Starting at 300 psi (20 bar), increase pressure in 100 psi (7 bar) increments up to 700 psi (50 bar). With too low a pressure, the pattern will be narrow and coarse, then become wider and finer as you increase pressure. As the pressure goes too high, the pattern becomes heavy in the middle and gets coarse again. Always use the lowest pressure that will give the results you want.

NOTE: Most foam materials are designed for a 1:1 mix ratio, and the 2 components usually have about the same viscosity. Pressures for these materials should be kept in close balance. However, materials with other mix ratios or different viscosities may require corresponding pressure imbalance.

Changing the temperature affects the viscosity and reaction time of the material. Increase the temperature in 5° F (3° C) increments up to 120° F (49° C). Raising the temperature reduces the viscosity, giving a wider and finer spray pattern; much like raising the pressure does. As the temperature gets too high, the pattern may develop streaks of mist and split into two circles. Also, the chemical reaction may start in mid-air, resulting in an undesirably rough surface.

MIXING CHAMBER SPRAYING CHART

CHAMBER	RECOMMENDED SPRAYING DISTANCE	SIZE OF PATTERN
208-689 : 0.046" (1.17 mm)	12" (300 mm)	6" (150 mm)
208-690 : 0.062" (1.57 mm)	18-20" (450-500 mm)	8-9" (200-230 mm)
208-691 : 0.078" (1.98 mm)	18-20" (450-500 mm)	10-12" (250-300 mm)

If you have trouble getting a good spray pattern, shut down the system, relieve fluid pressures, and thoroughly clean the nozzle and needle.

If, during regular spraying, the spray pattern starts to develop streaks, or drifts from the true circle, check to be sure the spray tip is clean. Next, check to see that adjustments have not changed, such as the gun needle setting, and hose temperature.

Each time you use the gun, before starting to spray, coat the entire gun with good mold release. This will allow any spray particles that accumulate on the gun to be cleaned off easily. If not coated, spray particles are extremely difficult to remove.

Always leave hoses connected to the gun unless shutting entire system down or if it is necessary to service gun.

SHUTDOWN PROCEDURES

5-60 minutes: Shut off both A and B material inlet valves. Trigger the needle back and forth several times, while squeezing the lube bottle until lubricant is seen to run out between needle and packing nut. Engage trigger safety. Before resuming, check fluid pressures and test spray off target.

Overnight: Shut off the pump and trigger the gun to relieve fluid pressures. Shut off the material inlet valves. Remove and clean the check valves and filters. Remove plugs from cleanout ports. See Fig 4. Flush out ports with gun cleaner (cellosolve). Back off the needle adjusting screw 1 turn, trigger the gun and clean out the injection slots with the proper size cleanout spade.

Also clean off the exposed part of the needle. Do not scrape with anything that might scratch the needle. See Fig 3.

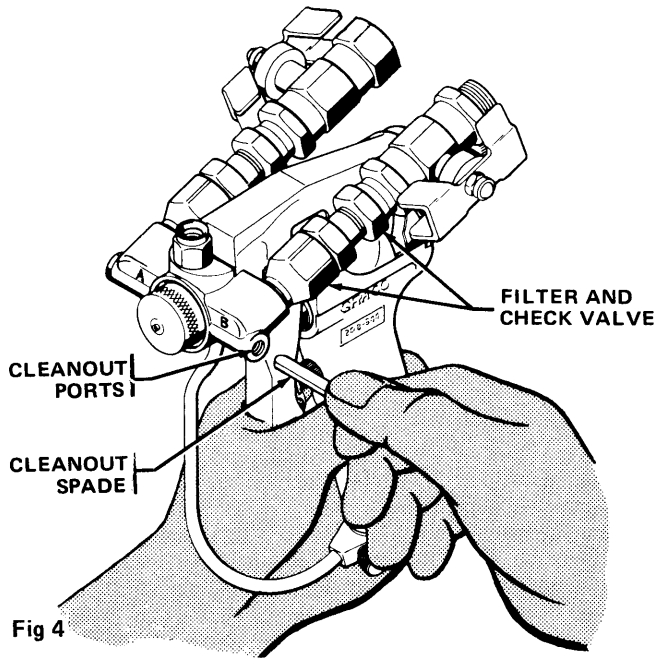


Fig 4

CAUTION

Don't let go of the trigger while the spade is in the slot, or the needle will break off the spade and ruin the chamber. It is best to shut off or disconnect the air supply while holding the gun trigger, so you can let go of the trigger and still have the needle retracted for cleaning.

Weekly or as often as necessary: Remove and clean the needle and nozzle. Refer to SERVICE section. If necessary, clean and lubricate the air cylinder shaft.

SERVICE

WARNING

ALWAYS relieve fluid pressures before starting to service this gun. After disconnecting material hoses, plug the ends with 1/4 NPT plugs to protect the material from air and dirt.

TROUBLESHOOTING CHART

PROBLEMS

- Not enough pressure or volume with pump running
- Excessive surge at spray gun
- Poor atomization
- Too much pressure or volume
- Foam has rough surface
- Tails or fingers in spray pattern
- Spitting at spray gun
- Gun will not spray
- Gun will not stop spraying
- Static sparking from gun
- Material not mixed properly

PROBABLE CAUSES AND REMEDIES

- Pump pressure setting too low (Adjust)
- Pump pressure setting too high (Reduce)
- Clogged gun filter (Clean)
- System heater inoperative (Clean, service)
- Material reacting too fast (Reduce heat)
- High flow rate (Use smaller needle & nozzle)
- Clogged nozzle (Clean)
- Worn or damaged gun parts (Service)
- Needle sticking (Clean, lubricate)
- Improper spraying technique
- Unit and work improperly grounded (See SAFETY PRECAUTIONS page 2)

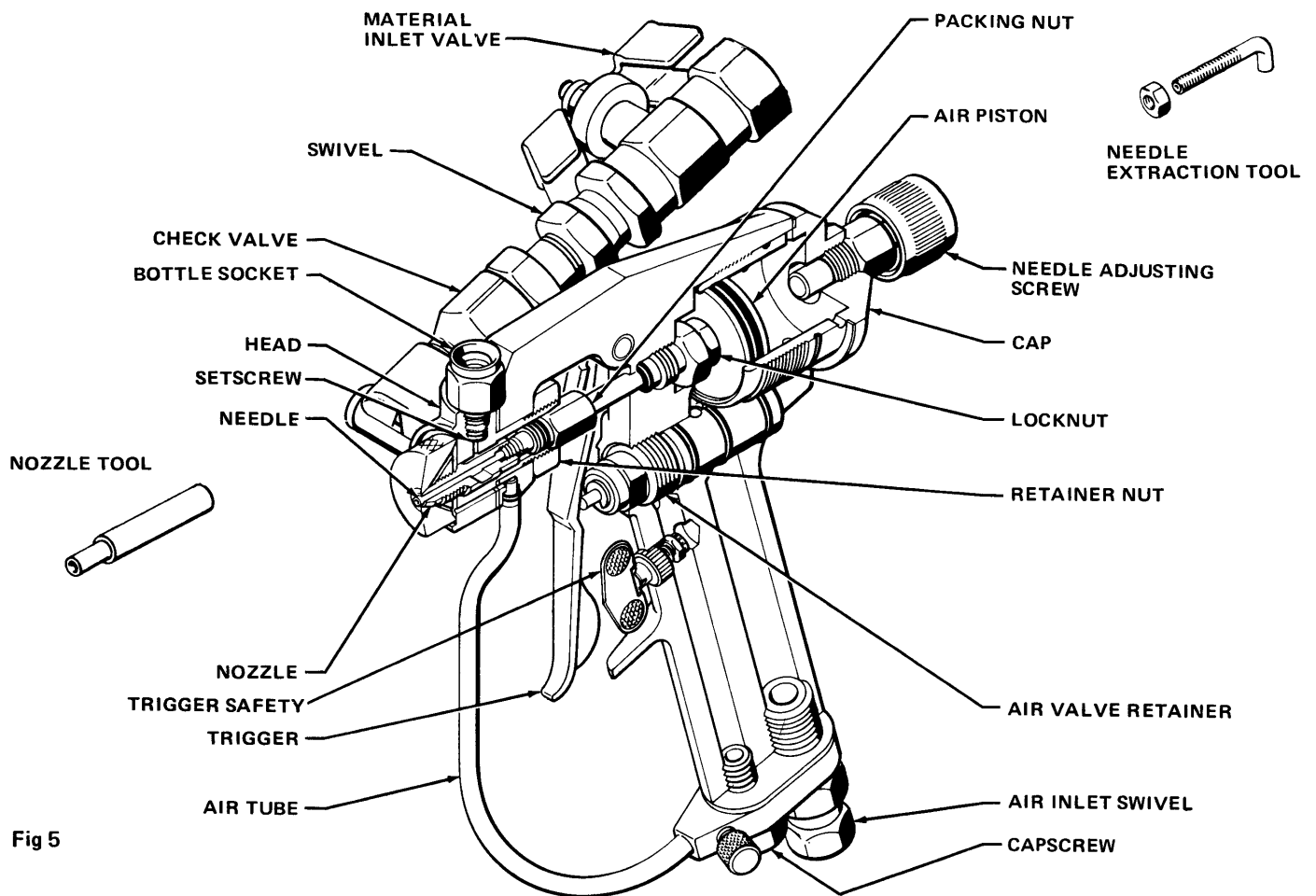


Fig 5

Disassembly of Gun

Shut off the pump and trigger the gun to relieve fluid pressures. Shut off the material valves, squeeze the lube bottle and trigger the gun several times to lubricate the needle.

Turn the needle adjusting screw all the way counterclockwise, pull the trigger and hold it while you shut off or disconnect the air supply. This leaves the needle fully retracted, for easy removal later on.

Disconnect the ball valve swivels from the check valves.

Remove the air tube. Unscrew the air inlet swivel and capscrew from the gun butt and pull the air tube out of the gun head.

Remove the trigger and check valves.

Remove the bottle socket and loosen the setscrew. Loosen the packing nut and unscrew the head retainer nut. Pull the head and nozzle off of the needle: the needle will slide forward until the air piston reaches its stop, then a sharp tug will pull the nozzle off of the needle.

If the needle is stuck tight in the nozzle due to hardened material, use the extraction tool provided. Remove the needle adjusting screw and screw extraction tool onto back end of needle. Hold the extraction tool from turning and tighten the nut to pull the needle out of the nozzle.

Remove the packing nut and insert the nozzle tool from rear of nozzle. A couple of taps with a light hammer will drive the nozzle out of the head.

Unscrew the air cylinder cap and remove the needle and piston.

Loosen locknut and remove piston and locknut from needle. If you change needle sizes often, it would be more convenient to keep assembled needles and pistons on hand.

Clean and inspect parts for wear or damage. If the gun head is clogged with hardened material, use the no. 7 drill bit supplied to clean it out. Hold the drill bit in your hand: do not use a power drill. Use the nozzle tool and the 0.062" (1.58 mm) drill bit supplied to install the nozzle in the head. Insert the plain end of the drill bit through the lube passage in the top of the head so that when you insert the nozzle, the lubrication groove in the nozzle will align with the lube passage. Slip the nozzle tool over the nozzle and tap it into place with a light hammer. After installation, tighten setscrew, install bottle socket and snap lube bottle in place. Check to be sure that lubricant flows freely when you squeeze the bottle -- this is essential to the operation of the gun. Screw the packing nut loosely into nozzle and install the gun head on the body.

Assemble the piston and nut onto the needle. Screw the needle extraction tool onto the back end of the needle and push into place. When fully forward, the needle should protrude 0.031" (0.79 mm) from the nozzle; remove and adjust, if necessary. Tighten the packing nut until snug, then tighten another 1/4 turn.

If necessary, service the air valve at this point. Unscrew the air valve retainer from the gun handle. Remove the E-ring retainer and disassemble the valve retainer, spring and stem. Use a hooked tool to pull the valve body from the gun handle. Clean and inspect parts for wear or damage. Replace as necessary.

Reassemble, reverse from disassembly.

PARTS LIST

REF PART NO.	PART NO.	DESCRIPTION	QTY	REF PART NO.	PART NO.	DESCRIPTION	QTY
1	100-131	NUT, hex; .375"-16	1	41	170-344	SPRING, compression	1
2	100-256	SCREW, rd hd mach; no. 2-56 x .125"	2	42	170-348	GASKET, polyethylene	1
3	100-265	NUT, hex; brass; no. 10-32	2	43	170-349	TRIGGER	1
4	101-891	BRUSH, nylon; .375" (9.52 mm) dia	1	44	170-392	TOOL, extraction	1
5	101-960	NUT, hex jam; .25"-20	1	45	170-393	HOUSING, check valve	2
6	101-970	PLUG, pipe; 1/4 npt	2	46	171-057	GASKET, copper	1
7	102-804	PACKING, o-ring; "Teflon"	2	47	171-821	SCREW, soc hd set; no. 10-32 x .19"	1
8	103-185	PACKING, o-ring; polyurethane	1	48	203-953	SCREW, trigger pivot	1
9	103-557	PACKING, o-ring; viton	1	49	205-265	MATERIAL FILTER Assy; .009" (.23 mm) spacing; includes items 50 & 51	2
10	103-559	PACKING, o-ring; viton	1	50	164-075	. HEAD, filter; nylon	1
11	103-560	RING, retaining	1	51		. ELEMENT, filter (not sold separately)	1
12	103-561	BOTTLE, 0.5 oz (15 cc); polyethylene	1	52	206-946	TRIGGER STOP Assy includes items 53-56	1
13	103-610	PACKING, o-ring; viton	3	53	101-965	. LOCKNUT; no. 5-40	1
14	103-611	PACKING, o-ring; viton	1	54	166-937	. BUSHING	1
15	103-650	TOOL, drill bit; .062" (1.58 mm) dia	1	55	166-938	. SPRING, compression	1
16	103-651	TOOL, drill bit; no. 7 size	1	56	169-614	. STOP, trigger	1
17	103-652	TOOL, wrench; 5/16" open end	1	57	206-994	THROAT SEAL LUBRICANT (TSL); 1 pint (.47 l)	1
18	103-917	TOOL, wrench; crescent	1	58	208-645	HOUSING, valve	1
19	156-766	GASKET, copper	2	59	208-646	BALL VALVE (see 306-861 for parts)	1
20	164-823	SPRING, compression	2	60	208-649	HOUSING, air valve	1
21	165-274	NIPPLE, hex; 1/4 npt x 11/16 thd	2	61	208-650	SCREW, adjusting	1
22	166-968	PIN, trigger pivot	1	62	208-651	UNION, adapter; 1/8 npsm (f) swivel	1
23	168-110	PACKING, o-ring; viton	2	63	210-173	BALL VALVE (see 306-861 for parts)	1
24	168-514	STEM, check valve	2	64		CAP, air (included in Needle and Nozzle Kit: see chart below)	1
25	168-515	GUIDE, check valve	2	65		NOZZLE, mixing (included in Needle and Nozzle Kit: see chart below)	1
26	168-517	NIPPLE, hex; 1/4 npt x 11/16 thd	2	66		SCREW, packing (included in Needle and Nozzle Kit: see chart below)	1
27	168-518	PACKING, o-ring; viton	4	67		TOOL, cleaning (included in Needle and Nozzle Kit: see chart below)	1
28	170-318	BODY, gun	1	68		NEEDLE (included in Needle and Nozzle Kit: see chart below)	1
29	170-321	SPOOL, valve	1				
30	170-326	SCREW, retaining	1				
31	170-327	CYLINDER, air	1				
32	170-331	NEEDLE, valve	1				
33	170-332	SOCKET, bottle	1				
34	170-333	PISTON	1				
35	170-334	GASKET, polyethylene	1				
36	170-337	TOOL, nozzle	1				
37	170-338	HOUSING, nozzle	1				
38	170-339	SCREW, hex hd; no. 10-32 x .25"	2				
39	170-342	RETAINER	1				
40	170-343	RETAINER, valve	1				

* SUGGESTED REPLACEMENT PARTS

NOTE: 306 & 307 Numbers in description refer to separate instruction manuals.

Order parts by number and name. Also give series letter and model number for which parts are ordered. Call or write your Graco distributor, nearest Graco factory branch or service depot for parts or service.

ACCESSORIES (must be purchased separately)

NEEDLE AND NOZZLE KITS

For replacement or conversion of needle and nozzle. Each kit includes a matched needle, nozzle with packing nut, air cap and cleanout tool. Choose the kit best suited to the volume of material you want to spray.

208-694 REPAIR KIT

Includes seals for all air passages

Consists of:

Ref No.	Qty	Ref No.	Qty
9	1	27	3
10	1	35	1
11	2	41	1
13	3	42	1
14	1	46	1
19	2		

Kit No.	Flow Rate	Nozzle and Needle Dia
208-689	2 lb/min (0.9 kg/min)	0.046" (1.17 mm)
208-690	8 lb/min (3.6 kg/min)	0.062" (1.57 mm)
208-691	15 lb/min (6.8 kg/min)	0.078" (1.98 mm)

ACCESSORIES (must be purchased separately)

O-RING CONVERSION KITS

MODEL 208-692 For use with chlorinated solvents.

Consists of:

- 168-518 (6 included) "Viton" o-ring
- 102-804 (5 included) "Teflon" o-ring
- 103-185 (1 included) Urethane o-ring

MODEL 208-693 For use with Ketone type solvents

Consists of:

- 103-154 (6 included) Ethylene Propylene o-ring to replace 168-518 "Viton" o-ring.
- 102-804 (5 included) "Teflon" o-ring
- 103-653 (1 included) Nipple, 1/2 - 20.

HOSE ADAPTER KIT

MODEL 208-695 For adapting to hoses with 37° flare tubing fittings.

Consists of:

- 208-698 (2 included) Union, 1/2-20 swivel to 1/4-18 npsm swivel.
- 208-699 (1 included) Union, 9/16-18 swivel to 1/4-18 npsm swivel.
- 103-563 (1 included) Nipple, 1/2-20.

TECHNICAL DATA

Maximum Working Pressure	1000 psi (70 bar)
Check Valves	poppet type; spring loaded
Material Filter	.009 in. spacing; permanent edge-type
Inlet Port Sizes	3/8 NPT (M), 1/4 NPT (M) optional
Wetted Parts	440 & 303 stainless steel; "Teflon"; "Viton". Urethane
Weight	3 lb (1.4 kg)

SERVICE INFORMATION

Listed below by the assembly changed are ADDED parts.

ASSEMBLY CHANGED	PART DESIGNATION	REF NO.	PART NO.	NAME
ALL FINAL Assy; Series to "B"	ADDED	47	171-821	Setscrew

THE GRACO WARRANTY

Graco Inc. warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship under normal use and service. Scope of this warranty extends to the original purchaser for a period of 12 months from the date of purchase and is applicable only when the equipment is installed and operated in accordance with factory recommendations. The warranty does not extend to damage or wear caused by misuse, abrasion, corrosion, negligence, accident, faulty installation or tampering in a manner to impair its normal operation.

In the event the equipment supplied by Graco Inc. is found to be defective within the above-stated 12-month period, Graco Inc. will repair or replace free of charge such defective parts if rendered prepaid to the factory or to an authorized Graco service agency and is found by Graco Inc.'s inspection to be truly defective in workmanship or material. In the event said material is deemed defective in workmanship or material, it will be corrected and shipped transportation prepaid within the continental U.S. If inspection of any such equipment by Graco Inc. does not disclose any defect in workmanship or material, repairs will be made at a reasonable charge. Purchased assemblies which are incorporated into Graco equipment, carry the manufacturer's regular warranty.

The foregoing warranties are exclusive, and are in lieu of all other warranties (whether written, oral or implied) including warranty of merchantability in other respects than expressly set forth above and warranty of fitness for a particular purpose. Except as herein provided, every form of liability for direct or consequential damages, or loss is expressly excluded and denied.



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